CLAIMS

We claim:

1. A drop filter comprising:

a holographic filter material;

a quasi phase-conjugate optical system;

an input optical fiber collimator;

a drop optical fiber collimator;

a through optical fiber collimator; and

a free-space circulator placed between said input optical fiber collimator and said holographic material of said drop filter.

2. The said holographic filter material of said drop filter of claim 1 is tunable.

3. The said holographic filter material of said drop filter of claim 1 can rotate.

4. The said drop filter of claim 1 uses said quasi phase-conjugate optical system for drop channel fiber coupling.

5. The said fiber optic source of claim 1 is fed with a plurality of wavelength division multiplexed channels of light.

6. Said light from said plurality of wavelength division multiplexed channels of claim 5 further comprises:

collimating said light;

passing said light through said holographic filter material; and

diffracting only one of said wavelength division multiplexed channels.

7. The said quasi phase-conjugate optical system of claim 4 comprises:

a lens; and

a mirror.

8. The focal length of said lens of claim 7 generates a quasi phase-conjugate diffracted beam of light.

9. Said diffracted beam of light of claim 8 is reflected back into said optical fiber collimator via said holographic filter material.

10. The focal length of said lens of claim 7 causes said diffracted beam of light to retrace its path towards said holographic filter material regardless of the orientation of said diffracted beam and said holographic filter material.

11. Said diffracted beam of light of claim 10 is Bragg matched to said holographic filter material.

12. Said Bragg matching of claim 11 forces said diffracted beam of light to follow a path identical to the original incident beam of light from said optical fiber collimator.

13. The diffracted beam of light of claim 12 is in an opposite direction as the original incident beam of light from said optical fiber collimator.

14. The free-space circulator of claim 1 directs said diffracted beam of light to an optical fiber collimator.

15. Said optical fiber collimator of claim 14 is different from said optical fiber collimator of claim 1.